

What is Claimed is:

- [c1] A method for controlling a process on a substrate comprising:
 - providing the substrate, the substrate having an upper surface, an opposite lower surface and an edge between the upper and lower surfaces;
 - processing the upper surface of the substrate with a first fluid;
 - directing a second fluid against a portion of the lower surface proximate to the edge of the substrate, wherein said second fluid flows adjacent to the edge of the substrate; and
 - controlling the temperature of said second fluid in order to affect a processing of an edge region of the upper surface of the substrate.
- [c2] The method of claim 1, wherein the substrate is a semiconductor wafer.
- [c3] The method of claim 1, wherein the second fluid comprises a gas.
- [c4] The method of claim 3, wherein the gas is selected from the group consisting of nitrogen, argon, helium and compressed air.
- [c5] The method of claim 1 wherein the step of controlling the temperature of said second fluid comprises increasing the temperature of the second fluid above an ambient temperature.
- [c6] The method of claim 5, wherein the step of processing the upper surface of the substrate comprises etching said upper surface and wherein increasing the temperature of said second fluid causes the etch rate of the processing to increase.
- [c7] The method of claim 1 wherein the step of controlling the temperature of said second fluid comprises decreasing the temperature of the second fluid below an ambient temperature.
- [c8] The method of claim 7, wherein the step of processing the upper surface of the substrate comprises etching said upper surface and wherein decreasing the temperature of said second fluid causes the etch rate of the processing to decrease.

- [c9] The method of claim 1, wherein the substrate is elevated above a Bernoulli chuck.
- [c10] The method of claim 12, wherein said Bernoulli chuck uses said second fluid to elevate the substrate.
- [c11] The method of claim 1, wherein the step of processing the upper side of the substrate with said first fluid is performed at ambient pressure.
- [c12] The method of claim 1, further including rotating the substrate.
- [c13] A method for processing a substrate having an upper surface, an opposite lower surface and an edge between the upper and lower surfaces, comprising:
 - providing a chuck for elevating the substrate above an upper surface of said chuck using a suspension fluid, said suspension fluid delivered from an annular opening in said upper surface of said chuck, said annular opening located proximate to an edge of said chuck, said suspension fluid in contact with the lower surface of the substrate proximate to the edge of the substrate;
 - delivering a processing fluid to the upper surface of the substrate; and
 - maintaining the temperature of said suspension fluid at a temperature different from an ambient temperature while delivering said processing fluid.
- [c14] The method of claim 13, wherein temperature of said suspension fluid is maintained above or below the ambient temperature.
- [c15] The method of claim 13, further including:
 - sensing the temperature of said suspension fluid proximate to said annular opening; and
 - controlling the temperature of said suspension fluid proximate to said annular opening to a predetermined value.
- [c16] The method of claim 13, further including rotating said chuck.
- [c17] An apparatus for processing a substrate having an upper surface, an opposite lower surface and an edge between the upper and lower surfaces, comprising:

a chuck for elevating the substrate above an upper surface of said chuck using a suspension fluid, said suspension fluid delivered from an annular opening in said upper surface of said chuck, said annular opening located proximate to an edge of said chuck, said suspension fluid in contact with the lower surface of the substrate proximate to the edge of the substrate; a fluid delivery located above the upper surface of the substrate for delivering a processing fluid to the upper surface of the substrate; and means for changing the temperature of said suspension fluid from an ambient temperature prior to said suspension fluid exiting said annular opening.

[c18] The apparatus of claim 17, wherein said means for changing the temperature of said suspension fluid heats or cools the suspension fluid.

[c19] The apparatus of claim 17, further including:
a temperature sensor embedded in said upper surface of said chuck proximate to said annular opening; and
a controller between said temperature sensor and said means for changing the temperature of said suspension fluid, said controller adapted to control said means for changing the temperature of said suspension fluid in order to control the temperature of said suspension fluid to a predetermined value as said suspension gas exists said annular opening.

[c20] The apparatus of claim 17, further including means for rotating said chuck.